

A new species of *Amoria* Gray, 1855 (Gastropoda: Volutidae) from Western Australia

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ABSTRACT. *Amoria stricklandi* sp. nov. is described. It is separated from the allopatric *Amoria dampiera* Weaver, 1960 with which it could be confused.

INTRODUCTION

Since the eighties, the potential of exploration in the benthic zone increased with the development of Remote Operated submarine Vehicles (ROV). This opportunity has been exploited successfully by Ray Walker for seven years, leading to important discoveries.

Ray Walker is well known in the shell world for many years as a keen diver and shell collecting expert. In 2005, he applied for a license from the W.A. Fisheries Department to collect shells by ROV. This took time and financial investment to acquire as nobody had ever suggested using this means of collecting before. The license was granted to operate the ROV in 60 to 300 m of water off the Western Australian coast. From a 57-foot vessel, "FV Desert Wind", carrying 2 ROVs, he currently operates to various depths and, assisted by Drew Strickland, uses an underwater sonar positioning device called "tritech" which allows them to plot the ROV position to within 10 m. The aim of most expeditions is chiefly the study of the *Zoila* group of *Cypraea* which are a suitable target. Volutes are more difficult to find as they are rarely exposed above the sand and are an incidental catch. Nevertheless, Ray Walker and his team brought to science many new taxa of Volutidae.

We are indebted to him for the discovery of new species (Morrison, 2012, 2013; Bail & Limpus, 2014) such *Amoria (Amoria) chaneyi*, Morrison, 2012; *Notoepulum raywalkeri* Morrison, 2013; *Cymbiola kimbacki* Bail & Limpus, 2014. He also helped to precisely establish the habitat and distribution of rare elusive species such *Notovoluta pseudolirata* (Tate, 1888); *Notovoluta baconi* Wilson, 1972; *Amoria (Amoria) diamantina* Wilson, 1972; *Notovoluta gerondiosi* Bail & Limpus, 2005 (pers.com.). The expeditions operated in 2015 led to the discovery of the present new species.

SYSTEMATICS

Family **VOLUTIDAE** Rafinesque, 1815
Subfamily **AMORIINAE** Gray, 1857
Tribe **Amoriini** Gray, 185
Genus *Amoria* Gray, 1855
Type species: *Voluta turneri* Gray in Griffith & Pidgeon, 1834 (by subsequent designation)
Subgenus *Amoria*

Amoria (Amoria) stricklandi sp. nov.
Figs 1, 2A-L; 3A, B; Table 1

Type material. Holotype Western Australian Museum, Perth, Australia, WAM S.56196; length: 32.3 mm; width: 14.8 mm (Fig. 2A-C).
Paratype: 32.7 mm x 15.8 mm, D. Strickland collection (Fig. 2F-H).

Type locality. South Lynher Bank, Kimberleys, 75-80 m, on sand bank.

Other material. Three dead-taken shells from south of Broome, 34.0 mm, 33.2 mm, 31.9 mm brought up by ROV at 85-95 m deep, in R. Walker collection (Fig. 2D-E, I-J, K-L).

Comparative material. Ten specimens of *Amoria (Amoria) dampiera* (Weaver, 1960) from the authors' collections.

Habitat. All specimens were collected from 75-95 m, on sand bars.

Range. Collected from three spots, one at 18° 54' S, 120° 06' E, south of Broome, Western Australia, one 80 nautical miles southwest of Broome and the other off Lacepede Islands. It is probable that the species has a more extended distribution and occupies the intervening area.

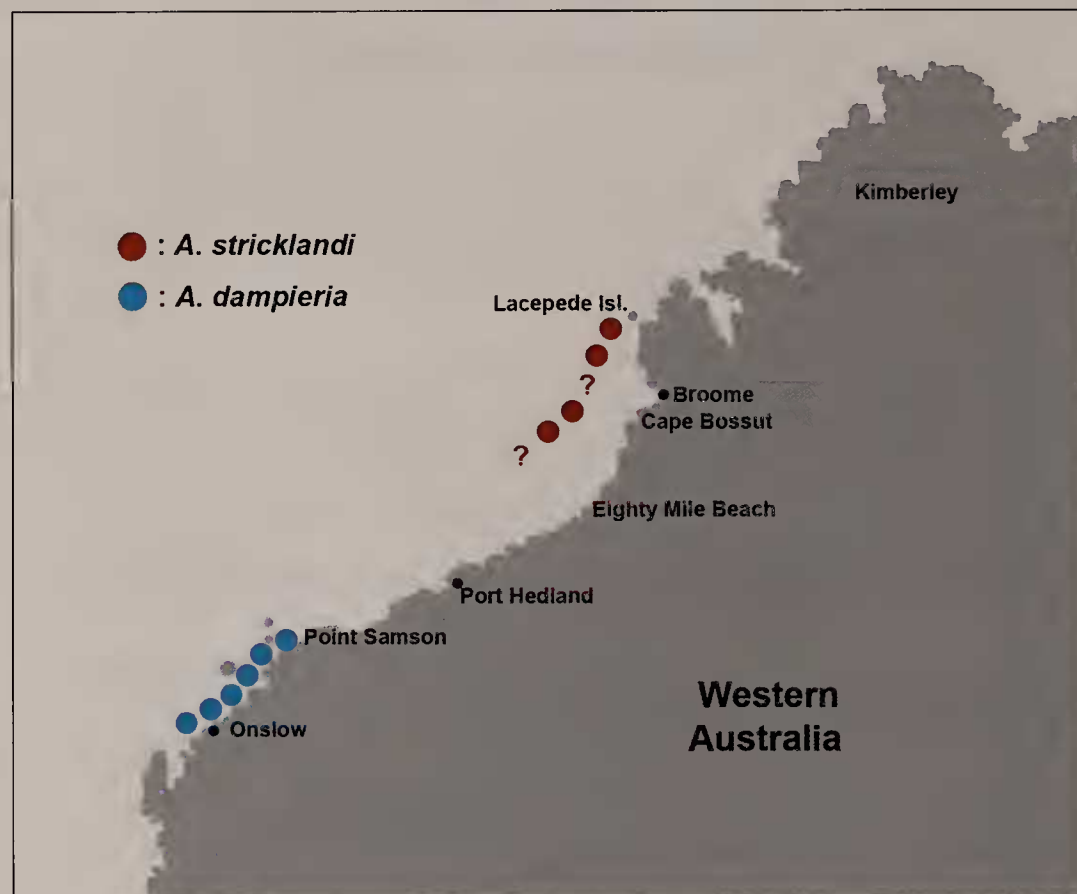


Figure 1. Geographical distribution of the *Amoria dampiera* - *stricklandi* complex

Description. Shell small for the genus (average length: 31-34 mm), solid, highly glossy, broadly ovate. Protoconch of 3.75 convex whorls, smooth, beige colored. Transition protoconch - teleoconch marked by progressive occurrence of axial pattern. Spire short, triangular with straight sides. Suture slightly impressed. Teleoconch smooth of 2.5 adult whorls, the last one very expanded, bearing convex shoulder. Aperture white, narrow, forming an average of 78% of the total shell length. Outer lip thickened and simple. Columella straight with 4 solid, thin, white columellar plaits. Siphonal notch narrow and shallow, upright open. Fasciole thin, its upper edge reaching the penultimate posterior plait. Parietal callus weak. Background flesh colored, overlaid by thin, almost straight, penciled axial brown lines, numbering 18-20 on the penultimate whorl, regularly spaced, running from the suture to the anterior tip, sometimes interrupted or merging on the anterior third. Aperture and columella porcellaneous white.

Animal not available for study.

Remarks. *Amoria* (*A.*) *stricklandi* resembles only its close relative *A.* (*A.*) *dampiera* Weaver, 1960 (Fig. 2M-N), with which it could be confused by sharing the same small size with axial lines. Nevertheless, distinction is easy and main character differences are summarized in Table 1.

Amoria (*A.*) *dampiera* is an endemic species, restricted from Onslow to Point Samson, Western Australia, in relatively shallow water from intertidal to 20-30 m. Besides their different bathymetric niches, a gap of 350 km separates these two taxa (Fig. 1).

It can also be compared with juveniles of other axially striped *Amoria* from the same area such *Amoria* (*A.*) *elliotti* (Sowerby II, 1864) and *A.* (*A.*) *jamrachi* (Gray, 1854) but they are fragile when juvenile with a more elongated shape and a pattern of thicker and more widely spaced axial lines.

The close similarity between *Amoria* (*A.*) *dampiera* and *A.* (*A.*) *stricklandi* suggests a relatively recent genetic separation, possibly during the Pleistocene period when the waters off the coast were subject to major marine regression and transgression, splitting the ecological niche of a hypothetical original population.

Amoria (*A.*) *dampiera* is a very stable species showing very few variants. This appears to be the same in *A.* (*A.*) *stricklandi*, even considering the small sampling.

Etymology. Named after Drew Strickland (Geraldton, Western Australia) a friend and close collaborator of Ray Walker.

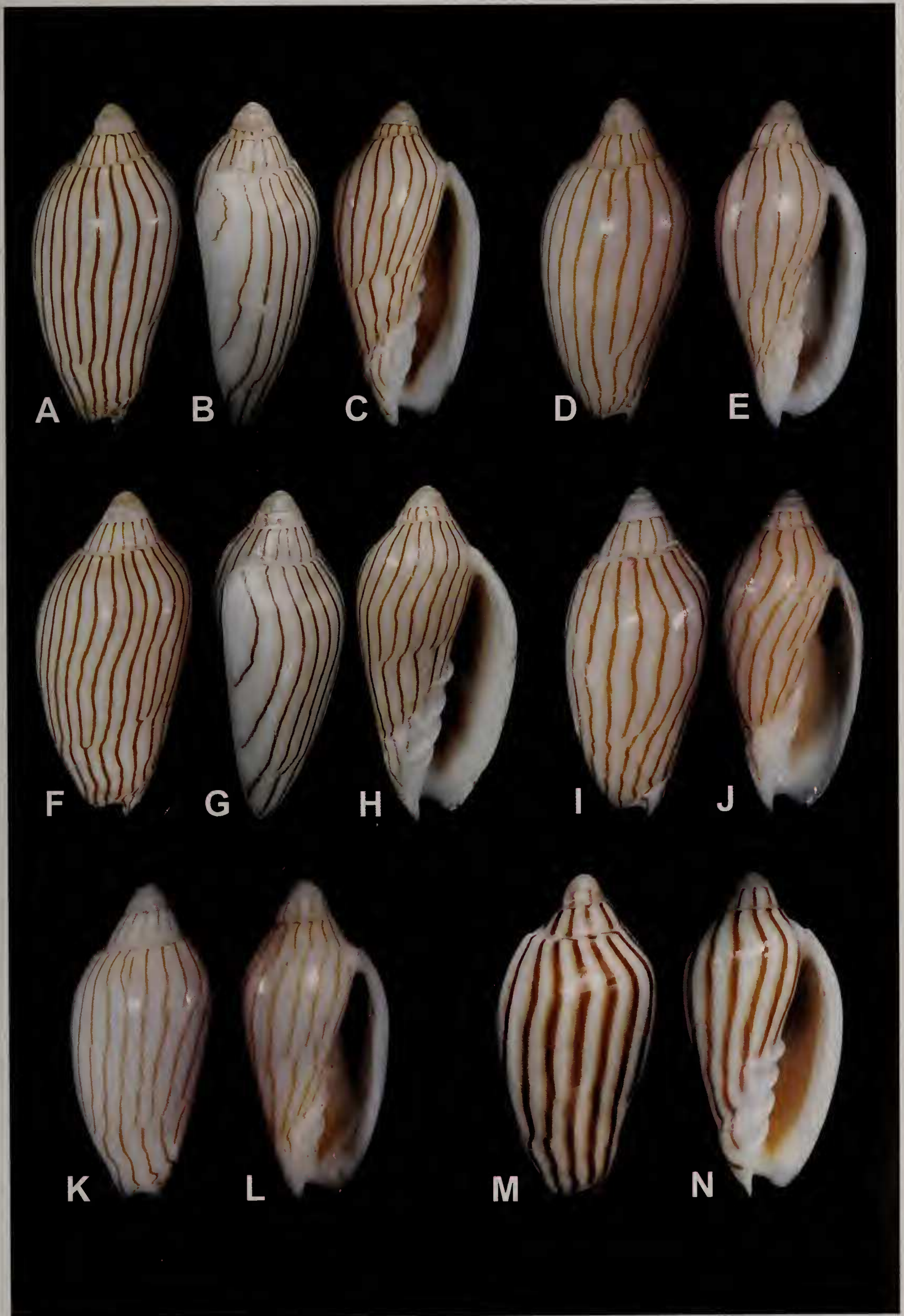
Figure 2

A-L. *Amoria* (*A.*) *stricklandi* sp. nov. South of Lynher Bank, Kimberley, 75-80 m: A-C. Holotype WAM S.56196, 32.3 mm; F-N: Paratype D. Strickland coll., 32.7 mm.

South of Broome, 85-95 m, R. Walker coll.: D-E: 31.9 mm; K-L: 32.2 mm.

West of Broome, 100 m, R. Walker coll.: I-J: 34.0 mm.

M, N. *Amoria* (*A.*) *dampiera* Weaver, 1960. Weld Island, P. Bail collection, 34.8 mm.



	<i>stricklandi</i>	<i>dampiera</i>
protoconch	rounded, whorls convex, flesh colored (Fig. 3A)	slightly flattened, white colored (Fig. 3C)
shape	shoulders convex siphonal notch upright (Fig. 3B)	shoulders angular siphonal notch abapically open (Fig. 3D)
pattern	dense, numerous axial fine lines numbering 18-20 on the penultimate whorl	more open, axial lines large numbering 11-12 on the penultimate whorl
background color	flesh	pale cream

Table 1. Differences between *Amoria* (A.) *stricklandi* sp. nov. and *A.* (A.) *dampiera* Weaver, 1960

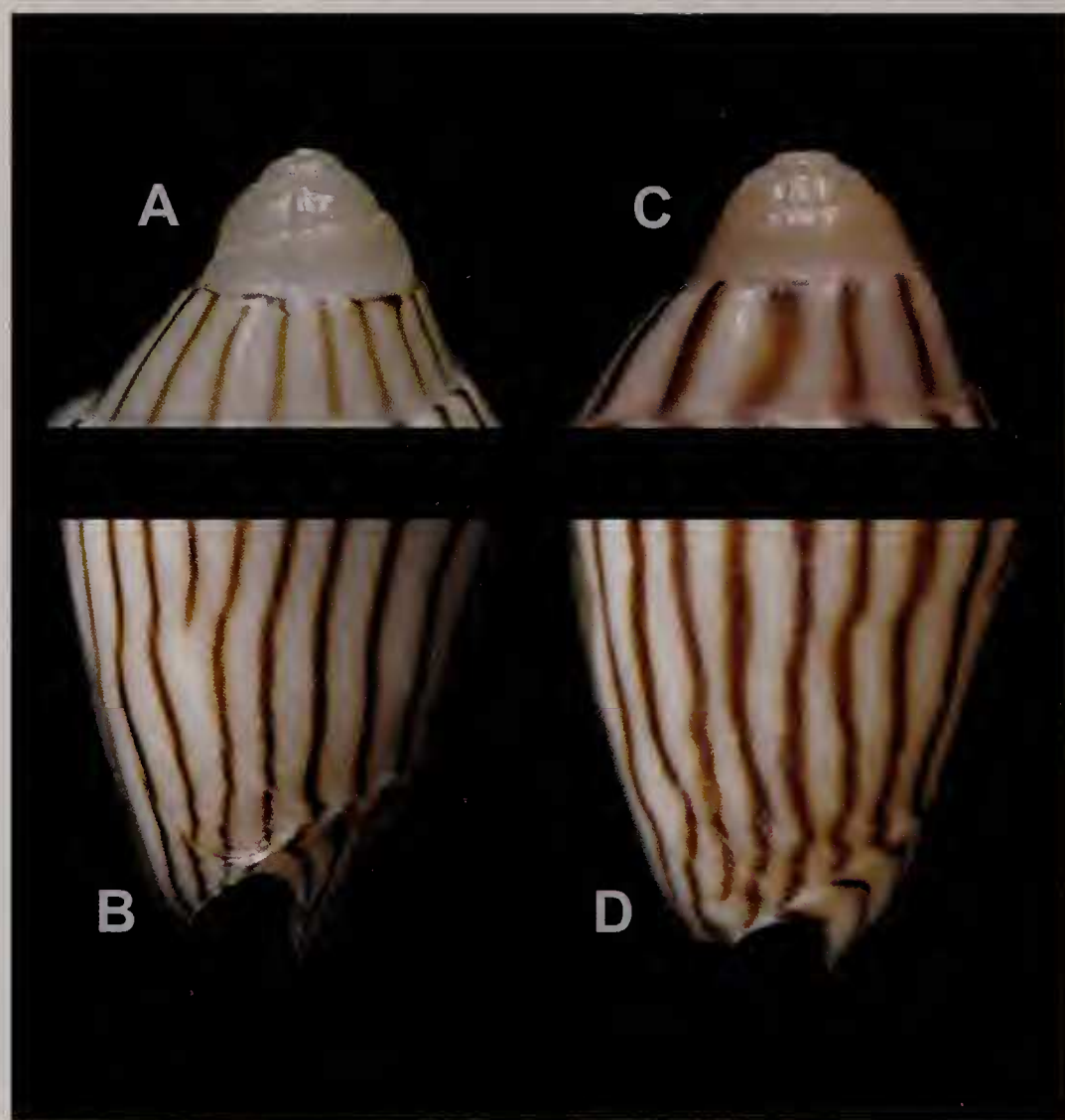


Figure 3. A, B. *Amoria* (A.) *stricklandi* sp. nov. Holotype WAM S.56196; C, D. *Amoria* (A.) *dampiera* Weaver, 1960. Weld Island, P. Bail collection.

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